

DETAILED ACTION

Claim Objections

1. Claim 17 is objected to because the limitations: "the coil is pre-wound before each of the plurality of individual stator magnetisable pole members is fixably supported within the stator frame" and "the longitudinal column is of a length such that the wounded coil does not extend out over and above the inner and outer rims" are not supported by the specification. Appropriate correction is required.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "the longitudinal column is of a length such that the wounded coil does not extend out over and above the inner and outer rims" in claim 17 must be shown or the feature canceled from the claim (it is also noted that Fig. 3 of the present invention shows the outer rim but not the inner rim. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the

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remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 17-21, 23 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zepp et al. (previously cited as US 6,880,229) in view of Morita (US 5,798,583).

Regarding claim 17, Zepp et al. disclose an electric machine comprising: a substantially cylindrical stator frame constructed of a stack of electrical steel laminations (Col. 4, lines 61-65 and Col. 5, lines 40-45); a plurality of individual stator magnetisable pole members (10 in Fig. 2 and Col. 6, lines 10-11) made of a soft magnetic composite material fixably supported within the stator frame; and a rotor (Fig. 6) having permanent magnetic pole pieces (40 in Fig. 6); wherein

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each of the plurality of individual stator magnetisable pole members has coil windings (22 in Fig. 6) about the stator magnetisable pole member, pre-wound before being fixably supported in the stator frame (Col. 7, lines 53-55), wherein each of the plurality of individual stator magnetisable pole members has an inner peripheral rim and an outer circumferential rim separated by a longitudinal column to which the coil is pre-wound before each of the plurality of individual stator magnetisable pole members is fixably supported within the stator frame. Zepp et al. do not show the longitudinal column is of a length such that the wounded coil does not extend out over and above the inner and outer rims.

However, Morita disclose a stator structure wherein the longitudinal column is of a length such that the wounded coil does not extend out over and above the outer rims (Fig. 2, 4 and 5) for the purpose of improving magnetic circuit characteristics without increasing thickness (Col. 2, lines 40-44).

Since Zepp et al. and Morita are in the same field of endeavor, the purpose disclosed by Morita would have been recognized in the pertinent art of Zepp et al.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Zepp et al. by making the longitudinal column is of a length such that the wounded coil does not extend out over and above outer rim as taught by Morita for the purpose of improving magnetic circuit characteristics without increasing thickness.

Regarding claim 18, Zepp et al. disclose an electric machine wherein the stator frame (2 in Fig. 5) provides an inner substantially circular ring to fixably

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support the plurality of individual stator magnetisable pole members (20) thereon, such that the outer circumferential rim (28 in Fig. 4) of each of the plurality of individual stator magnetisable pole members and an inner face of the circular ring of the stator frame engage in a tongue and groove fit.

Regarding claim 19, Zepp et al. disclose an electric machine wherein the circumferential rim (28 in Fig. 4) includes a tongue (26 in Fig. 4) longitudinally configured substantially down a length thereof (Fig. 2), and the inner face of the circular ring of the stator frame includes a series of grooves (6 in Fig. 5) about the ring inner face, so that each of the plurality of individual stator magnetisable pole members may be positioned in a substantially annular arrangement about the circular ring.

Regarding claim 20, Zepp et al. disclose an electric machine wherein the inner circular ring of the stator frame comprises, adjacent to each of the plurality of individual stator magnetisable pole members, a flat section that is perpendicular to the adjacent individual stator magnetisable pole member.

Regarding claim 21, Zepp et al. disclose an electric machine wherein the inner peripheral rim and the outer circumferential rim of each of the plurality of individual stator pole members supported within the stator frame is disposed such that an air gap between the rotor and the stator are reduced (Fig. 6).

Regarding claim 23, Zepp et al. disclose an electric machine wherein the soft composite material is bonded iron (Col. 6, lines 10-12).

Regarding claim 25, Zepp et al. disclose an electric machine wherein the electric machine is an electrical motor (intended use, patentable weight not given).

Regarding claim 26, Zepp et al. disclose an electric machine wherein the electric machine is an electrical generator (intended use, patentable weight not given).

Regarding claim 27, Zepp et al. disclose an electric machine wherein the electric machine is an electrical transformer (intended use, patentable weight not given).

4. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zepp et al. in view of Morita and further in view of Trago et al (US 2001/0048264).

Regarding claim 22, Zepp et al. and Morita show all limitations of the claimed invention except showing the electric motor comprising six magnetisable pole pieces on the stator and four permanent pole pieces on the rotor.

However, Trago et al. disclose an electric motor comprising six magnetisable pole pieces on the stator and four permanent pole pieces on the rotor for the purpose of providing an optimized motor in vibration sensitive environment (paragraph 001).

Since Zepp et al., Morita and Trago et al. are in the same field of endeavor, the purpose disclosed by Trago et al. would have been recognized in the pertinent art of Zepp et al. and Morita.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Zepp et al. and Morita by making an electric machine with six magnetisable pole pieces on the stator and four permanent pole pieces on the rotor as taught by Trago et al. for the purpose of providing an optimized motor in vibration sensitive environment.

5. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zepp et al. in view of Morita and further in view of Shimizu et al (US 6,864,605).

Regarding claim 24, Zepp et al. and Morita show all limitations of the claimed invention except showing the electric motor wherein each of the stack of electrical steel laminations of the frame has a shape such that, when assembled into the frame, an internal profile of the frame is non-circular, maximizing the amount of space available for coil pre-wound about each of the plurality of individual stator magnetisable pole members.

However, Shimizu et al. disclose an electric motor having a stator frame with a shape such that, when assembled into the frame, an internal profile of the frame is non-circular, maximizing the amount of space available for coil pre-wound about each of stator magnetisable pole members (Fig. 4) for the purpose of reducing cogging torque (Col. 2, lines 56-60).

Since Zepp et al., Morita and Shimizu et al. are in the same field of endeavor, the purpose disclosed by Shimizu et al. would have been recognized in the pertinent art of Zepp et al. and Morita.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Zepp et al. and Morita by

making an electric machine having a stator frame has a shape such that, when assembled into the frame, an internal profile of the frame is non-circular, maximizing the amount of space available for coil pre-wound about each of stator magnetisable pole members as taught by Shimizu et al. for the purpose of providing an optimized motor in vibration sensitive environment.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Information on How to Contact USPTO

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh N Nguyen whose telephone number is

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(571) 272-2031. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Quyen Leung, can be reached on (571) 272-8188. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and (571) 273-8300 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1000.

HNN

January 5, 2010

/Nguyen N Hanh/

Primary Examiner, Art Unit 2834